

are lost, and have only been identified years afterwards from memory. A considerable number have only been seen, not obtained, and the correctness of the identification of many of these is extremely doubtful. In addition to the forty more or less doubtful occurrences, there are no fewer than seventy-five that have only been once shot on the island, though in a few cases it is supposed that other examples have been seen near enough for identification. There still remain, however, two hundred and eighty species which have been shot more than once upon the island, and a large proportion of which pass over regularly every spring and autumn, some of them occasionally in incredibly large numbers.

Under all circumstances the facts recorded in this most interesting book are of the greatest importance; and it is to be hoped that the English translation will appear without unnecessary delay.

It is noteworthy to remark that most of the wanderers from the east have occurred in autumn, whilst the accidental visitors from the south have generally appeared in spring. This fact has been previously observed and recorded of the rare stragglers to the British Islands (Seeböhm, *Brit. Birds*, ii. p. 318).

II.—*A short Review of the Francolins belonging to the Genera Francolinus and Pternistes.* By W. R. OGILVIE GRANT (Nat. Hist. Mus.).

(Plate I.)

THE following brief review contains a key to all the known species of Francolins. It gives also a short synonymy, which shows, so far as I know, the oldest authority for every combination of generic and specific names ever used for each species, and all references to plates, except in the case of species (such as *Francolinus francolinus*) which have been frequently figured, when the best only are quoted. The geographical range is stated in every case, and a few notes are added.

Francolinus uluensis is described as new, and the name *Francolinus sharpii* is proposed for the bird commonly known as *F. rueppelli*, G. R. Gray; the latter name, as shown in the text, being synonymous with *F. clappertoni*, Childr. *Francolinus buckleyi*, a MS. name given by Captain G. E. Shelley to two female specimens obtained by him at Accra, is provisionally put forward. The specimens differ considerably from the female of *F. coqui*, and most likely represent an allied but distinct West-African species; they may, however, be the females of *F. schlegeli*, known only from a male obtained by Heuglin at Bongo in Equatorial Africa.

The confusion of names, especially among the species of *Pternistes*, has been great, and I trust this paper may prove useful to other ornithologists who study this group of Game Birds.

Key to the Genus *Francolinus*.

- A. Both webs of the primaries with a well-defined row of rufous or buff spots.
 - a. A chestnut nuchal collar.
 - a¹. Throat black *F. francolinus*, ♂.
 - b¹. Throat white *F. francolinus*, ♀.
 - b. No chestnut nuchal collar.
 - c¹. Scapulars chestnut or chestnut and black, with white or buff ocelli. Underparts covered with white ocelli..... *F. chinensis*, ♂.
 - d¹. Scapulars black, edged with brown, with short transverse bars and spots of buff. Underparts buff, barred with black .. *F. chinensis*, ♀.
 - e¹. Scapulars black, edged with buff *F. pictus*, ♂ ♀.
- B. Both webs of the primaries without a well-defined row of buff spots.
 - c. With white or buff shaft-streaks on the feathers of the back and scapulars.
 - f¹. Chin and throat black.
 - a². Breast-feathers black, with heart-shaped white centres *F. lathamii*, ♂.
 - b². Breast-feathers black, with heart-shaped white centres, and margined externally with brown *F. lathamii*, ♀.
 - g¹. Chin and throat not black.
 - c². Breast and flanks whitish buff, uniformly barred with black.

- a*³. With narrow wavy black bars *F. pondicerianus*, ♂ ♀.
- b*³. With wider regular black bars.
- a*⁴. Shoulders, wing-coverts, and the outer web of the secondaries barred with brownish grey.
- a*⁵. Chest and back of the neck barred with black and white. *F. coqui*, ♂.
- b*⁵. Chest and back of the neck vinaceous grey and dull chestnut, with white shaft-streaks. *F. coqui*, ♀.
- b*⁴. Shoulders, wing-coverts, and the outerwebs of secondaries uniform light red *F. schlegeli*, ♂.
- d*². Breast and flanks not barred.
- c*³. Feathers surrounding the neck barred alternately with black and white, contrasting strongly with the rest of the plumage *F. streptophorus*, ♂ ♀.
- d*³. Feathers surrounding the neck dark chestnut, edged on either side with white or buff.
- c*⁴. Breast and underparts without chestnut spots.
- c*⁵. Size larger; wing ca. 6·5 *F. sephæna*, ♂ ♀.
- d*⁵. Size smaller; wing ca. 5·6 *F. granti*, ♂ ♀.
- d*⁴. Most of the feathers of the breast and underparts with an oblong dark chestnut spot at the extremity of the shaft.
- e*⁵. Size larger; wing 6·5 *F. spilogaster*, ♂.
- f*⁵. Size smaller; wing 5·7 *F. kirki*, ♂ ♀.
- e*³. No collar of feathers contrasting with the rest of the plumage surrounds the neck.
- e*⁴. Underparts uniform buff *F. albogularis*, ♂ ♀.
- f*⁴. Underparts with various markings.
- g*⁵. Throat white, or white more or less spotted with black, and not circumscribed by a marked black line.
- a*⁶. Throat equally spotted all over with round black spots. *F. spilolæmus*, ♂ ♀.
- b*⁶. Throat spotted on the edges with black; sometimes the

middle feathers are in addition edged with black.

a⁷. Middle of breast and belly pale buff, with black shaft-stripes.

a³. Nape rufous buff. *F. gutturalis*, ♂ ♀.

b³. Nape dusky grey. *F. finschi*, ♀.

b⁷. Middle of breast and belly pale buff, with irregular arch-shaped black bars, giving it an ocellated appearance.

c⁸. Inner webs of the primaries brown, more or less mottled with rufous. *F. africanus*, ♂ ♀.

d⁸. Inner webs of the primaries mostly chestnut. *F. uluensis*, ♂.

h⁵. Throat white, neither spotted with black nor surrounded by a black line; feathers of the upper back chestnut in the middle, variegated with black and margined with grey *F. castaneicollis*, ♀.

i⁵. Throat pure white, circumscribed by a marked black line.

c⁶. The black and white superciliary stripes meet at the back of the head, and are confluent on the nape *F. levaillanti*, ♂ ♀.

d⁵. The black and white superciliary stripes do not meet at the back of the head, but continue down the sides of the neck.

e⁷. Upper back and nape with a large rufous chestnut patch spotted with black. *F. elgonensis*, ♀.

d⁷. Upper back like the rest of the upper parts: only nape rufous.

e⁸. Lower part of breast and belly rich buff, streaked with chestnut and dotted with black. *F. garijensis*, ♂ ♀.

- f*⁸. Lower breast and belly buff, almost immaculate *F. jugularis*, ♂ ♀.
- g*⁸. Lower breast and belly whitish, with black V-shaped bars *F. shelleyi*, ♂.
- k*⁵. Throat bright rufous chestnut; feathers of underparts white, edged on either side with blackish-brown *F. gularis*, ♂ ♀.
- d*. None of the feathers of the upper surface have white shaft-streaks. (In *F. erckeli* a few of the outer scapulars have buff shafts.)
- h*¹. Whole of the underparts narrowly barred with black and white *F. adspersus*, ♂ ♀.
- i*¹. Underparts not barred.
- e*². Inner webs of the primaries pale buff, or brown, barred or freckled with buff.
- f*³. Chest mixed with rufous.
- g*⁴. Underparts with rufous shaft-streaks; inner webs of primaries freckled with rufous *F. griseostriatus*, ♂.
- h*⁴. Each feather of the underparts with a black raquet-shaped shaft-streak; inner webs of primaries with irregular longitudinal or transverse buff stripes.. *F. bicalcaratus*, ♂ ♀.
- g*³. Chest not mixed with rufous.
- i*⁴. Greater part of the inner webs of the primaries uniform buff; feathers of the chest buff, with a wide brownish-black stripe down the middle of each.
- l*⁵. Top of the head and ground-colour of the upper parts reddish or olive brown, feathers of the mantle widely margined all round with whitish buff *F. clappertoni*, ♂ ♀.
- m*⁵. Top of the head and ground-colour of the rest of the upper parts rich dark brown; feathers of the mantle narrowly margined on the sides with white *F. gedgii*, ♂.

- k*⁴. Inner webs of primaries freckled or dotted with buff; underparts strongly striped with brownish black on a white or buff ground.
- n*⁵. On a white ground *F. hartlaubi*.
- o*⁵. On a buff ground *F. icterorhynchus*, ♂ ♀.
- l*⁴. Inner webs of primaries with longitudinal rufous or buff stripes; feathers on the chest dark brown, narrowly margined with buffy white *F. sharpii*, ♂ ♀.
- f*². Inner webs of primaries uniform dark brown, sometimes slightly dotted with buff towards the marginal extremity.
- h*³. Throat spotted with black.
- m*⁴. Lower back and scapulars blackish brown, each feather narrowly margined and vermiculated with white *F. capensis*, ♂ ♀.
- n*⁴. Lower back and scapulars reddish or olive brown, finely mottled with black.
- p*⁵. Breast and belly white, with V-shaped black marks *F. natalensis*, ♂ ♀.
- q*⁵. Breast and belly white, with a heart-shaped black mark on each feather *F. hildebrandti*, ♂.
- i*³. Throat not spotted with black.
- o*⁴. Underparts bright rust-colour, dotted with buff; flight-feathers without a clear spot at the extremity; tail-feathers and outer webs of the wings brown, vermiculated with rufous buff *F. hildebrandti*, ♀.
- p*⁴. Underparts clear ochre; isolated feathers with white borders, and some of the breast-feathers spotted with black at the tip; flight-feathers with a clear spot at the extremity; tail-feathers and outer webs of the wings rust-red, barred with dark brown *F. fischeri*, ♀.
- q*⁴. Underparts bright reddish chestnut; (the basal half of the breast-

- feathers barred with black in some specimens). Primaries and outer tail-feathers dark brown. Lesser and median wing-coverts with a round black subterminal spot *F. oculus*, ♂ ♀.
- r⁴. Underparts neither rust-coloured nor ochre.
- r⁵. Feathers of the back of the neck brownish or blackish, edged with white or grey.
- e⁶. Breast-feathers grey or buff, shading into brown towards the shaft.
- e⁷. Margins of the feathers of the middle of the breast and belly dull grey . . . *F. schuetti*, ♂.
- f⁷. Margins of the feathers of the middle of the breast and belly pale buff . . . *F. schuetti*, ♀.
- f⁶. Breast-feathers whitish buff, with dark shafts *F. squamatus*, ♂ ♀.
- g⁶. Breast-feathers dark brown, with a wide submarginal band on each side *F. ahantensis*, ♂ ♀.
- s⁵. Feathers of the back of the neck chestnut, edged with white or grey.
- h⁶. Bill red; all the feathers of the underparts with wide chestnut stripes down the centre *F. jacksoni*, ♂.
- i⁶. Bill black; all the feathers of the underparts with an oblong spot at the extremity . *F. erckeli*, ♂ ♀.

1. FRANCOLINUS FRANCOLINUS.

The Francolin, Edw. Glean. Nat. Hist. v. p. 75, pl. 246 (1758).

Tetrao francolinus, Linn. S. N. i. p. 275 (1766).

Perdix francolinus, Temm. Pig. et Gall. iii. pp. 340, 723 (1815).

Attagen francolinus, Keys. & Blas. Wirbelth. Eur. p. 65 (1840).

Chætopus francolinus, Blasius, List B. Europe, p. 16 (1862).

Francolinus vulgaris, Steph. in Shaw's Gen. Zool. xi. p. 319 (1819); Dresser, B. Europe, vii. p. 123, pl. 473 (1876); Hume & Marsh. Game B. Ind. ii. p. 9, pl. (1879).

Perdix hepburnii, Gray, Ill. Ind. Zool. pl. 55. fig. 1 (1830-32).

Perdix hepburnii, var. *pallida*, Gray, Ill. Ind. Zool. pl. 55. fig. 2 (1830-32).

Francolinus vulgaris? v. *brevipes*, Hodgs. in Gray's Zool. Misc. p. 85 (1844).

Francolinus asiæ, Bonap. C. R. xlii. p. 882 (1856).

Francolinus henrici, Bonap. C. R. xlii. p. 882 (1856).

Francolinus tristriatus, Bonap. C. R. xlii. p. 882 (1856).

It is to be remarked that Indian specimens, although absolutely identical in plumage with those from Cyprus, Asia Minor, and Persia, are considerably smaller in size.

Indian specimens: wing 5·7-6·0 inches.

Cyprus, &c., specimens: wing 6·6-6·9 inches.

Hab. From Cyprus, Palestine and Asia Minor, through Persia eastwards to Northern India.

2. *FRANCOLINUS CHINENSIS*.

La Perdrix de la Chine, Bris. Orn. i. p. 234, pl. 28 A. fig. 1 (1760).

Tetrao chinensis, Osbeck, Voy. en Chine, ii. p. 326 (1771).

Francolinus chinensis, Gray, Hand-l. B. ii. p. 266, no. 9681 (1870); Gray, Fasc. B. China, pl. 7 (1871); Hume & Marsh. Game B. Ind. ii. p. 27, pl. (1879).

Perdix sinensis, Spalowsk. Vög. pt. ii. p. 16, pl. 31 (1791).

Francolinus sinensis, Blyth, Cat. B. Mus. As. Soc. p. 251 (1849).

Francolin de l'Isle de France, Sonnerat, Voy. aux Indes, ii. p. 166, pl. 97 (1782).

Pintado Partridge, Lath. Gen. Syn. ii. p. 761 (1783).

Tetrao pintadeanus, Scop. Del. Flor. et Faun. Ins. pt. ii. p. 93 (1786).

Francolinus pintadeanus, Gray, List Birds, pt. v. Gall. p. 54 (1867).

Francolinus pintadeus, Blyth, Cat. B. Mus. As. Soc. p. 250 (1849).

Tetrao madagascariensis, Gmel. S. N. i. p. 756 (1788).

Francolinus madagascariensis, Newton, Ibis, 1861, p. 274.

La Perdrix perlée, Buff. Hist. Nat. ii. p. 446 (1771).

Pearled Partridge, Lath. Gen. Syn. ii. p. 772 (1783).

Tetrao perlatus, Gmel. S. N. i. p. 758 (1788).

Perdix perlata, Lath. Ind. Orn. ii. p. 648 (1790); Vieill. Gal. Ois. ii. p. 41, pl. 213 (1825).

Francolinus perlatus, Steph. in Shaw's Gen. Zool. xi. p. 325 (1819).

Perdix (Francolinus) maculatus, Gray, Zool. Misc. p. 2 (1831).

Perdix phayrei, Blyth, J. A. S. Beng. xii. p. 1011 (1843).

Francolinus phayrei, Blyth, J. A. S. Beng. xxiv. p. 480 (1855).

Hab. Indo-Chinese subregion; Mauritius (introduced).

3. FRANCOLINUS PICTUS.

Perdix picta, Jard. & Selb. Ill. Orn. pl. 50.

Francolinus pictus, Gray, List Gall. B. iii. p. 36 (1814); Hume & Marsh. Game B. Ind. ii. p. 19, pl. (1879).

Hab. Central and part of Southern India and Ceylon.

3 A. FRANCOLINUS INTERMEDIUS.

Francolinus intermedius, Butler, Str. F. v. p. 211 (1877).

Hybrid between *F. pictus* and *F. vulgaris*, Hume & Marsh. Game B. Ind. ii. p. 25, pl. (1879).

Hab. Deesa; North-western India.

4. FRANCOLINUS LATHAMI.

Francolinus lathamii, Hartl. J. f. O. 1854, p. 210.

Peliperdix lathamii, Bonap. C. R. xlii. p. 882 (1856).

Perdicideus lathamii, Heine, J. f. O. 1860, p. 198.

Francolinus peli, Temm. Bijdr. tot de Dierk. i. p. 50, pl. (1854).

Hab. Loango Coast, Gaboon, Gold Coast, Liberia, Sierra Leone, Casamanze and Senegambia.

5. FRANCOLINUS PONDICERIANUS.

Pondicherry Partridge, Lath. Gen. Syn. ii. p. 774 (1783).

Tetrao pondicerianus, Gmel. Syst. Nat. i. p. 760 (1788).

Perdix pondiceriana, Temm. Pig. et Gall. iii. pp. 332, 722 (1815).

Francolinus pondicerianus, Steph. in Shaw's Gen. Zool. xi. p. 321 (1819).

Ortygornis pondiceriana, Hume, Nests & Eggs, p. 542 (1873).

Perdix ponticeriana, Lath. Ind. Orn. ii. p. 649 (1790); Temm. Pl. Col. v. pl. 32 (1823).

Francolinus ponticerianus, Gray, List Gall. B. iii. p. 35 (1844).

Ortygornis ponticeriana, Jerd. B. Ind. ii. p. 569 (1863); Hume & Marsh. Game B. Ind. ii. p. 51, pl. (1879).

Perdix orientalis, Gray, Ill. Ind. Zool. pl. 56. fig. 2 (1830-32).

Hab. India, Ceylon, Afghanistan and Beluchistan; Mascarenhas Is. (introduced).

6. *FRANCOLINUS COQUI*.

Perdix coqui, Smith, Rep. Exp. Centr. Afr. p. 55 (1836).

Francolinus coqui, Böhm, J. f. O. 1882, p. 194.

Francolinus subtorquatus, Smith, Ill. Zool. S. Afr. pl. 15 (1838).

Chaetopus subtorquatus, Bonap. C. R. xlii. p. 882 (1856).

Scleroptera subtorquata, Gurney, in Anderss. B. Damaral. p. 246 (1872).

Francolinus semitorquatus, Ayres, Ibis, 1880, p. 110.

Francolinus schlegeli, Bocage (nec Heugl.) Orn. Angola, p. 407 (1881).

Francolinus stuhlmanni, Reich. J. f. O. 1889, p. 270.

Hab. East, South, and South-west Africa.

7. *FRANCOLINUS SCHLEGELI*.

Francolinus schlegelii, Heugl. J. f. O. 1863, p. 275; Heugl. Orn. N.O.-Afr. ii. p. 898, pl. xxx. (1873).

Hab. Bongo, Equatorial Africa.

In Captain Shelley's collection there are two female specimens, obtained by him at Accra in 1872 and provisionally named *Francolinus buckleyi*, which may possibly belong

to the present species. They differ from the female of *F. coqui* in having the black lines over the eye and round the throat almost obsolete, the greater part of the basal two thirds of the inner primaries and secondaries chestnut, and the general tone of the top of the head and upper parts dull grey, with only narrow bars of rufous buff here and there. Possibly these birds may represent a distinct species, but in the absence of male specimens it is impossible to say.

8. *FRANCOLINUS STREPTOPHORUS*.

Francolinus streptophorus, Grant, Ibis, 1891, p. 126.

Hab. South foot of Mt. Elgon, Central East Africa.

9. *FRANCOLINUS SEPHÆNA*.

Perdix sephæna, Smith, Rep. Exp. Centr. Afr. p. 55 (1836).

Francolinus sephæna, Newton, Ibis, 1868, p. 269.

Francolinus pileatus, Smith, Ill. Zool. S. Afr. pl. 14 (1838).

Chatopus pileatus, Bonap. C. R. xlii. p. 882 (1856).

Scleroptera pileata, Gurney, in Anderss. B. Damaral. p. 247 (1872).

Hab. South Africa: on the east from the Transvaal to the Zambesi, and westwards to the northern part of Damaraland and to the north.

10. *FRANCOLINUS GRANTI*.

Francolinus granti, Hartl. P. Z. S. 1865, p. 665, pl. 39. fig. 1.

Francolinus pileatus, Rüpp. (nec Smith) Vög. N.O.-Afr. p. 106 (1845).

Francolinus roruma, Gray, List Birds, pt. v. Gall. p. 52 (1867) [part ♂].

Francolinus schoanus, Heugl. Orn. N.O.-Afr. ii. p. 890, pl. 29. fig. 2 (1873).

Francolinus ochrogaster, Hartl. J. f. O. 1882, p. 327.

Hab. East Africa: from about 3° S. to 10° N. lat.

11. *FRANCOLINUS SPILOGASTER*.

Francolinus spilogaster, Salvadori, Ann. Mus. Civ. Genov. vi. p. 541 (1888).

To be distinguished from *F. kirki* only by its greater size.

Hab. North-east Africa: Harar, Shoa.

12. *FRANCOLINUS KIRKI*.

Francolinus kirki, Hartl. P. Z. S. 1867, p. 827; Finsch & Hartl. Ost-Afr. p. 588, pl. x. fig. 1 (1870).

Francolinus roxuma, Gray, List Birds, pt. v., Gall. p. 52 (1867).

Francolinus granti, Nicholson, P. Z. S. 1878, p. 359; Shelley, P. Z. S. 1881, p. 597.

Hab. East Africa: from the Rovuma River to Dar-es-Salaam and Zanzibar Is.

13. *FRANCOLINUS ALBOGULARIS*.

Francolinus albogularis, Gray, List Gall. B. iii. p. 35 (1844).

Chaetopus albogularis, Bonap. C. R. xlii. p. 882 (1856).

Hab. West Africa: Gambia and Casamanze.

14. *FRANCOLINUS SPILOLEMUS*.

Francolinus psilolemus, Gray, List Birds, pt. v. Gall. p. 50 (1867).

Hab. Shoa.

15. *FRANCOLINUS GUTTURALIS*.

Perdix gutturalis, Rüpp. N. Wirbelth. p. 13 (1835).

Francolinus gutturalis, Rüpp. N.O.-Afr. p. 103, pl. 40 (1845).

Chaetopus gutturalis, Bonap. C. R. xlii. p. 882 (1856).

Scleroptera gutturalis, Speke, Ibis, 1860, p. 248.

Hab. North-east Africa: Bogos, Abyssinia, Somali-land (*fide* Speke).

16. *FRANCOLINUS FINSCHI*.

Francolinus finschi, Bocage, Orn. Angola, p. 406 (1881).

Hab. South-western Africa: Benguela.

17. *FRANCOLINUS AFRICANUS*.

Pearled Partridge, var. A, Lath. Gen. Syn. ii. p. 773 (1783).

Perdix afra, Lath. (nec P. L. S. Müll.) Ind. Orn. ii. p. 618 (1790).

Francolinus afer, Gray, List Gall. B. iii. p. 34 (1844).

?*Pternistes* (*Scleroptila*) *afra*, Blyth, Cat. B. Mus. As. Soc. p. 250 (1849).

Chætopus afer, Bonap. C. R. xlii. p. 882 (1856).

Francolinus africanus, Steph. in Shaw's Gen. Zool. xi. p. 323 (1819).

As the majority of authors consider the *Pternistes*, or Bare-throated Francolins, as merely a subgenus of *Francolinus*, I deem it advisable to adopt the later name *F. africanus*, Steph., for this species, in preference to *Perdix afra*, Lath., as that name (*Tetrao afer*) had already been used by P. L. S. Müller for a species of *Pternistes*.

Hab. South Africa : Transvaal and Cape Colony.

18. FRANCOLINUS ULUENSIS, sp. n.

I was at first somewhat doubtful whether two specimens collected by Mr. F. J. Jackson at Machakos, in the Ulu country, should be referred to *F. gutturalis* or not. One would certainly expect to find them distinct from the Abyssinian birds, and on comparing them with typical specimens from Abyssinia the differences, although few, seem sufficient to justify their separation.

Both specimens are males, with fully-developed spurs, and they differ from *F. gutturalis* in the two following points. On the side of the neck, between the continuations of the rufous-buff superciliary and cheek-stripes, and behind the ear-coverts, lies a well-marked triangular patch, an inch or more in length, of white feathers with black tips. There is no trace of this in *F. gutturalis*, but it is equally distinct in *F. afer* from S. Africa. Again, the feathers of the breast and belly, instead of having black shaft-stripes, are covered with irregular arch-shaped black bars, which give these parts an ocellated appearance much as in *F. afer*. The tarsus is longer than in *F. gutturalis*, 1·6 as against 1·4 inches.

Total length 12·0 inches, wing 6·5, tail 2·9, tarsus 1·6.

Hab. East Africa : Ulu country.

19. FRANCOLINUS CASTANEICOLLIS.

Francolinus castaneicollis, Salvadori, Ann. Mus. Civ. Genov. vi. p. 512 (1888) ; Grant, Ibis, 1890, p. 350, pl. xi.

Hab. North-east Africa : Lago, Ciar-Ciar, Shoa.

20. FRANCOLINUS LEVAILLANTI.

Perdix levaillantii, Valenc. Dict. Sci. Nat. xxxviii. p. 441 (1825).

Perdix vaillantii, Temm. Pl. Col. v. pl. 33 (1829).

Francolinus levaillanti, Gray, List Gall. B. iii. p. 33 (1844); Smith, Ill. Zool. S. Afr. pl. 85 (1849).

Pternistes (Scleroptila) levaillanti, Blyth, Cat. B. Mus. As. Soc. p. 250 (1849).

Chætopus levaillanti, Bonap. C. R. xlii. p. 882 (1856).

Perdix levaillantoides, Smith, Rep. Exp. Cent. Afr. p. 55 (1836).

No doubt Smith intended the name *P. levaillantoides* to apply to the bird which he afterwards named *F. gariensis*; but from the description it is clear that the specimen described belonged to *F. levaillanti*.

Hab. South Africa: Transvaal, Orange Free State, Natal, Cape Colony.

21. FRANCOLINUS ELGONENSIS.

Francolinus elgonensis, Grant, Ibis, 1891, p. 126.

Hab. Central East Africa: Mount Elgon, 11,000 feet.

22. FRANCOLINUS GARIEPENSIS.

Francolinus gariensis, Smith, Ill. Zool. S. Afr. pls. 83 [♂] & 84 [♀] (1843).

Chætopus gariensis, Bonap. C. R. xlii. p. 882 (1856).

Hab. Eastern South Africa: Transvaal west of the Drakenberg Mountains.

23. FRANCOLINUS JUGULARIS.

Francolinus gariensis, auct. (nec Smith).

Scleroptera gariensis, Gurney, in Anderss. B. Damaral. p. 245 (1872).

Francolinus jugularis, Büttikofer, Notes Leyd. Mus. xi. pp. 76, 77, pl. iv. (1889).

Hab. Western South Africa: from Gt. Namaqualand northwards to Angola.

24. FRANCOLINUS SHELLEYI.

Francolinus gariensis, auct. (nec Smith).

Francolinus shelleyi, Grant, Ibis, 1890, p. 348.

Hab. Eastern South Africa : east of the Drakenberg Mts., Natal, Swaziland, and the Umfuli River. ? East Africa : Zanzibar (*Fischer*).

25. *FRANCOLINUS GULARIS*.

Perdix gularis, Temm. *Pig. et Gall.* iii. pp. 401, 731 (1815) ; Gray, *Ill. Ind. Zool.* pl. 56. fig. 1 (1830-32).

Francolinus gularis, Gray, *List Gall. B.* iii. p. 31 (1844).

Ortygornis gularis, Jerd. *B. Ind.* ii. p. 573 (1863) ; Hume & Marshall, *Game B. Ind.* ii. p. 59, pl. (1879).

Perdix monogrammica, Less. *Traité d'Orn.* p. 504 (1831).

Hab. Northern India : Terai region skirting the southern base of the Himalayas from Pilibhit to Sadiya in Eastern Assam, Cachar, and Tipperah.

26. *FRANCOLINUS ADSPERSUS*.

Francolinus adpersus, Waterh. in Alexander's *Exp.* ii. p. 267, pl. [imm.].

Chætopus adpersus, Bonap. *C. R.* xlii. p. 882 (1856).

Scleroptera adpersa, Gurney, in Anderss. *B. Damaral.* p. 247 (1872).

Hab. Western South Africa : from the Orange River to the Cunene, and inland to Lake Ngami.

27. *FRANCOLINUS GRISEOSTRIATUS*.

Francolinus griseostriatus, Grant, *Ibis*, 1890, p. 349, pl. x.

Hab. West Africa : River Quanza*.

28. *FRANCOLINUS BICALCARATUS*.

Tetrao bicalcaratus, Linn. *S. N.* i. p. 277 (1766).

Perdix bicalcarata, Lath. *Ind. Orn.* ii. p. 643 (1790).

Francolinus bicalcaratus, Gray, *List Gall. B.* iii. p. 33 (1844).

Chætopus bicalcaratus, Bonap. *C. R.* xlii. p. 882 (1856).

Senegal Partridge, Lath. *Gen. Syn.* ii. p. 757 (1783).

Perdrix du Sénégal, D'Aubent. *Pl. Enl.* ii. pl. 47 (no. 137).

Francolinus senegalensis, Steph. in Shaw's *Gen. Zool.* xi. p. 330 (1819).

Didymacis senegalensis, Reichenb. *Handb. Gall.* fig. 1768 (1853).

* Given by mistake as " River Congo " in the original description.

Perdix adansoni, Temm. Pig. et Gall. iii. pp. 305 & 717 (1815).

Chætopus adansoni, Swains. West Afr. ii. p. 217 (1837).

Francolinus albiscapus, Reichenb. Handb. Gall. figs. 1753 & 1754 (1853).

Hab. West Africa : from the Niger to the Mogador Coast.

29. *FRANCOLINUS CLAPPERTONI*.

Francolinus clappertoni, Children, Denh. & Clapperton's Trav. App. xxi. p. 198 (1826) ; Gray, Gen. B. iii. p. 505, pl. 130 (1846).

Perdix clappertoni, Cretzsch. Rüpp. Atl. p. 13, pl. 9 (1826).

Chætopus clappertoni, Bonap. C. R. xlii. p. 882 (1856).

Francolinus rüppelli, Gray, List Gall. B. iii. p. 33 (1844) [synonymy only].

Hab. Kordofan, Darfur, and Bornu.

30. *FRANCOLINUS GEDGII*.

Francolinus gedgii, Grant, Ibis, 1891, p. 124.

Hab. Central East Africa : Elgon Plains.

31. *FRANCOLINUS HARTLAUBI*.

Francolinus hartlaubi, Bocage, J. Sc. Lisb. ii. p. 350 (1869).

Hab. Western South Africa : Benguela.

32. *FRANCOLINUS ICTERORHYNCHUS*.

Francolinus icterorhynchus, Heugl. J. f. O. 1863, p. 275 ; Heugl. Orn. N.O.-Afr. ii. p. 894, pl. 29. fig. 1 (1873).

Hab. Central Africa : Bongo, Djur, Kosanga, and west of Albert Nyanza.

33. *FRANCOLINUS SHARPII*, sp. n.

Francolinus rüppelli, Gray, List Gall. B. iii. p. 33 (1844) [Abyssinian specimens].

Chætopus rüppellii, Bonap. C. R. xlii. p. 882 (1856).

Francolinus clappertoni, Des Murs in Lefebvre's Voy. en Abyss. p. 146, pl. xii. (1845-50) ; Antin. e Salvad. Cat. Ucc. p. 134 (1873) ; Salvad. Ann. Mus. Civ. Genov. xxi. p. 211 (1884).

In 1826 Children described *Francolinus clappertoni* in Denham and Clapperton's 'Travels,' App. xxi. p. 198. The

type was obtained in Bornu (see Denham's 'Narrative,' p. 320), and is preserved in the Natural History Museum. There is a second specimen in the same collection which was obtained by Mr. Petherick in Kordofan.

In 1826 Cretzschmar figured and redescribed the same species in Rüppell's 'Atlas,' p. 13, pl. 9, under the name of *Perdix clappertoni*, from six specimens obtained by Rüppell in Kordofan, who also recorded the bird from Darfur and Bornu. The figure is a good one, and shows the distinctive characters of the species at a glance.

In 1844 Gray published the third part of his 'List of the specimens of Birds in the British Museum,' and, for some inexplicable reason, he imagined that Cretzschmar's figure represented a species distinct from *F. clappertoni*, Children, so he renamed the former *Francolinus rüppelli* (p. 33), and in 1846 figured the latter type as *F. clappertoni*, in the 'Genera of Birds,' iii. p. 505, pl. 130.†

Anyone comparing these two figures, Cretzschmar's in 'Rüpp. Atl.' pl. 9, and Gray's in 'Gen. B.' pl. 130, will see at once that they represent the same species.

The name *F. rüppelli* is therefore simply a synonym of *F. clappertoni*, though by some mistake it has been applied by the majority of authors to the Abyssinian bird, which is really a very distinct species, and has never possessed a name, though it is well figured by Des Murs in Lefebvre's 'Voy. en Abyss.' p. 116, pl. xii. (1845-50). I therefore propose the name of *F. sharpii* for the Abyssinian bird, in honour of my colleague, Dr. R. Bowdler Sharpe.

Hab. North-east Africa : Bogosland, Abyssinia, and Shoa.

34. *FRANCOLINUS CAPENSIS*.

Cape Partridge, Lath. Gen. Syn. ii. p. 756 (1783).

Tetrao capensis, Gmel. Syst. Nat. i. p. 759 (1788) ; Forst. Desc. Anim. p. 400 (1844), and Icon. ined. pl. 135.

Perdix capensis, Lath. Ind. Orn. ii. p. 643 (1790).

Francolinus capensis, Gray, List Gall. B. iii. p. 34 (1844).

Pternistes (Clamator) capensis, Blyth, Cat. B. Mus. As. Soc. p. 250 (1849).

Chætopus capensis, Bonap. C. R. xlii. p. 882 (1856).

Perdix clamator, Temm. Pig. et Gall. iii. pp. 298, 717 (1815).

Francolinus clamata, Steph. in Shaw's Gen. Zool. xi. p. 327 (1819).

Francolinus clamator, Layard, B. S. Afr. p. 268 (1867).

Perdix (Francolinus) clamosus, Less. Traité d'Orn. p. 504, pl. 87. fig. 2 (1831).

Perdix nudicollis, Temm. Pig. et Gall. iii. pp. 317 & 720 (1815) [part].

Hab. South Africa: Cape Colony, extending to the Orange River, and Robben Island.

35. *FRANCOLINUS NATALENSIS*.

Francolinus natalensis, Smith, S. Afr. Journ. (2) p. 48 (1833); Smith, Ill. Zool. S. Afr. pl. 13 (1838).

Chætopus natalensis, Bonap. C. R. xlii. p. 882 (1856).

Perdix lechoho, Smith, Rep. Exp. Cent. Afr. p. 54 (1836).

Hab. Eastern South Africa: Matabeleland, Transvaal, Swaziland, Natal.

36. *FRANCOLINUS HILDEBRANDTI*.

Francolinus (Scleroptera) hildebrandti, Cabanis, J. f. O. 1878, p. 206, and 1879, p. 243, pl. iv. fig. 2; Grant, Ann. Mag. N. H. ix. p. 144 (1891).

Francolinus altumi, Fischer & Reich. J. f. O. 1884, p. 179, pl. ii.

The last collection sent home by Mr. F. J. Jackson contains an immature specimen changing from the female or "*hildebrandti*" plumage into that of the male or "*altumi*." This specimen in many points agrees well enough with Dr. Reichenow's description of *F. fischeri*, but the wings and tail are brown, mottled with rufous buff, instead of clear rust-red, barred with dark brown as in the latter.

Hab. East Africa: Masai-land, Kilimanjaro and Kikuyu.

37. *FRANCOLINUS FISCHERI*.

Francolinus fischeri, Reich. J. f. O. 1887, p. 51.

Hab. Ussure, Victoria Nyanza.

38. *FRANCOLINUS OCULEUS.*

Perdix oculea, Temm. *Pig. et Gall.* iii. pp. 408, 733 (1815);
Gray, *Ill. Ind. Zool.* i. pl. 58 (1830-32).

Galloperdix oculea, Bonap. *C. R.* xlii. p. 882 (1856).

Caloperdix oculea, Blyth, *Ibis*, 1867, p. 160.

Rollulus oculeus, Gray, *List B.* pt. v. *Gall.* p. 65 (1867).

Caloperdix oculeus, Hume & Marsh, *Game B.* ii. p. 101,
pl. (1879).

Calloperdix oculeus, Hume, *Str. F.* viii. p. 69 (1879).

Tetrao ocellatus, Raffl. *Trans. Linn. Soc.* xiii. p. 322 (1822).

Cryptonyx ocellatus, Vig. *Zool. Journ.* iv. p. 349 (1829).

Rollulus ocellatus, Gray, *List of Gall.* iii. p. 43 (1844).

Caloperdix ocellata, Blyth, *B. Burn.* p. 151 (1875).

Hab. Tenasserim, Malacca, Sumatra, Java, Borneo.

Specimens from Sumatra and Java are, on the whole, less brightly coloured on the underparts than Malaccan birds, and the chest, even in perfectly adult and old specimens, has the basal halves of the feathers irregularly barred with black; the black feathers also of the upper back, instead of being ornamented by a white submarginal line, are irregularly barred with yellowish white. I must, however, add that a female specimen from Malacca obtained by Dr. Maingay represents an intermediate form, the breast and underparts being darker and similar to other Malayan birds, but some of the feathers of the chest are barred with black, while the markings on the upper back, though white, are disposed as transverse bars, instead of following the shape of the feathers. It is for this reason impossible to separate the two forms, which would no doubt be regarded by some as incipient species.

39. *FRANCOLINUS SCHUETTI.*

Francolinus (Scleroptera) schuetti, Cab. *J. f. O.* 1880, p. 351, and 1881, pl. ii.

Hab. West Africa: Lunda, Angola. East Africa: Kilimanjaro dist., 5000 to 6000 feet.

40. *FRANCOLINUS SQUAMATUS.*

Francolinus squamatus, Cassin, *P. Ac. Philad.* viii. p. 321 (1857).

Francolinus petiti, Bocage, J. Sc. Lisb. vii. p. 68 (1879).

Francolinus modestus, Cab. J. f. O. 1889, p. 89.

I have, without hesitation, added *Francolinus modestus*, Cab., to the synonymy of this species. Some years ago, Dr. Cabanis sent to the Natural-History Museum specimens which he believed to be new, and to which he had given the MS. name of *F. griseimarginatus*. These proved to be *F. squamatus*, Cassin.

So far as I have been able to discover, the name *F. griseimarginatus* was never published, and I have little doubt that the name *F. modestus* has since been given to these specimens, for the description agrees perfectly with the present species and the geographical range is the same.

Hab. West Africa : Loango Coast and Gaboon.

41. *FRANCOLINUS AHANTENSIS*.

Francolinus ahantensis, Temm. Bijdr. tot de Dierk. i. p. 49, pl. 14 (1854).

Francolinus ashantensis, Gray, List Birds, pt. v. Gall. p. 51 (1867).

Hab. West Africa : Loango Coast, Gold Coast, Liberia.

42. *FRANCOLINUS JACKSONI*. (Plate I.)

Francolinus jacksoni, Grant, Ibis, 1891, p. 123.

Hab. East Africa : Kikuyu Country.

43. *FRANCOLINUS ERCKELI*.

Perdix erckelii, Rüpp. N. Wirbelth. p. 12 (1835).

Francolinus erckelii, Des Murs in Lefebvre's Voy. en Abyss. p. 144, pl. 11 (1845-50).

Francolinus erckelii, Gray, List Gall. B. iii. p. 33 (1844).

Chætopus erkeli, Bonap. C. R. xlii. p. 882 (1856).

? *Francolinus icteropus*, Heugl. J. f. O. 1862, p. 412; Hartl. P. Z. S. 1865, p. 666, pl. 39. fig. 2.

Hab. North-east Africa : Bogos; Eastern Abyssinia to Shoa and westwards to Wogara, 2,500 to 11,000 feet.

Key to the Genus Pternistes.

- A. Feathers of the back and scapulars with dark brown shaft-stripes.
- a. Neck-feathers black, with white or pale buff margins.
- a¹. Feathers of the lower breast and belly uniform black, or black or rufous-brown with a white band down the centre, and often a blackish shaft-streak.
- a². Feathers from the gape to the cheek black (freckled with white in the females and young).
- a³. Sides of the feathers of the lower breast and belly black; with spurs. *P. nudicollis*, ♂.
- b³. Sides of the feathers of the lower breast and belly rufous brown; no spurs *P. nudicollis*, ♀.
- b². Feathers from the gape to the cheek white.
- c³. Feathers of lower breast and belly black *P. humboldti*, ♂.
- d³. Feathers of the lower breast and belly black, with a narrow white stripe down the middle *P. humboldti*, ♀.
- b¹. Feathers of the lower breast and belly white, with a wide central band of black down the middle of each feather.
- c². Upper chest grey, each feather finely dotted towards the extremity with black; with spurs. *P. afer*, ♂.
- d². Chest brownish grey, with black shaft-stripes; no spurs *P. afer*, ♀.
- c¹. Feathers of the lower breast and belly white, finely vermiculated with black, and widely margined with chestnut.
- e². Without black shaft-streaks *P. cranchi*, ♂ ♀.
- f². With black shaft-streaks *P. boehmei*, ♂ ♀.
- d¹. Feathers of the lower breast and belly umber-brown, like those of the back, with dark shaft-streaks; feathers of the middle of the belly mottled on the sides.
- g². Edged with dark chestnut. *P. swainsoni*, ♂.
- h². Not edged with chestnut *P. swainsoni*, ♀.
- b. Neck-feathers white, with black and rufous-brown margins; under surface white, with broad rufous-brown margins and black shaft-stripes *P. rufopictus*.

B. Feathers of the back and scapulars with white shaft-stripes.

c. Feathers of the chest white, edged with brown. *P. leucoscepus*, ♂ ♀.

d. Feathers of the chest brown, shading into chestnut towards the base, and with a narrow white shaft-stripe, forming a triangular white patch, at the extremity *P. infuscatus*, ♂ ♀.

1. PTERNISTES NUDICOLLIS.

Le Gorge-nue, Buff. Hist. Nat. ii. p. 444 (1771).

Bare-necked Partridge, Lath. Gen. Syn. ii. p. 759 (1783).

Tetrao nudicollis, Bodd. Tabl. Pl. Enl. p. 11, no. 180 (1783).

Perdix nudicollis, Lath. Ind. Orn. ii. p. 644 (1790).

Pternistes nudicollis, Gray, List Gall. B. iii. p. 32 (1844).

Francolinus nudicollis, Gray, Gen. B. iii. p. 506 (1846).

Francolinus capensis, Steph. in Shaw's Gen. Zool. xi. p. 333 (1819) [part].

Hab. South Africa: Transvaal, Cape Colony.

2. PTERNISTES HUMBOLDTI.

Francolinus humboldti, Peters, MB. Berl. Akad. Wissensch. 1854, p. 134.

Pternistes humboldti, Bocage, J. f. O. 1876, p. 304; Grant, Ann. Mag. N. H. vii. p. 145 (1891).

Francolinus nudicollis, Fischer & Reich. J. f. O. 1879, p. 339.

Pternistes nudicollis, Fischer, J. f. O. 1885, p. 121; Shelley, P. Z. S. 1881, p. 597.

Francolinus (Pternistes) leucoparæus, Fischer & Reich. J. f. O. 1884, p. 263.

Pternistes leucoparæus, Fischer, J. f. O. 1885, p. 121; Matschie, J. f. O. 1889, p. 340; Reich. J. f. O. 1890, p. 77.

Hab. East Africa: from the Zambesi to the River Tana.

3. PTERNISTES AFER.

La Perdrix d'Afrique, D'Aubent. Pl. Enl. ii. pl. 48 (no. 180).

La Perdrix rouge, Buff. Hist. Nat. ii. p. 44 (1771).

Tetrao afer, Müll. S. N. Suppl. p. 129 (1776).

Red-necked Partridge, Lath. Gen. Syn. ii. p. 771 (1783).

Tetrao rubricollis, Gmel. S. N. i. p. 758 (1788).

Perdix rubricollis, Lath. Ind. Orn. ii. p. 648 (1790).

Francolinus rubricollis, Steph. in Shaw's Gen. Zool. xi. p. 335 (1819).

Pternistes rubricollis, Bocage, J. Sci. Lisb. iii. p. 175 (1871).

Perdix nudicollis, Temm. Pig. et Gall. iii. p. 317, 720 (1815) [part].

Pternistes nudicollis, Gurney in Anderss. B. Damaraland, p. 244 (1872).

Pternistes sclateri, Bocage, J. Sci. Lisb. i. p. 327, pl. vi. (1868).

Hab. Western South Africa: Mossamedes, Benguela, Angola.

4. *PTERNISTES CRANCHI*.

Perdix cranchi, Leach, in Tuckey's Narrat. Explor. River Zaire, App. p. 408 (1818).

Francolinus cranchi, Steph. in Shaw's Gen. Zool. xi. p. 336 (1819).

Pternistes cranchi, Wagl. Isis, 1832, p. 1229; Gray, List Gall. B. iii. p. 32 (1844).

Perdix punctulata, Gray, Ill. Ind. Zool. ii. pl. 43. fig. 3 (1833-4).

Arboricola punctulata, Blyth, Ibis, 1867, p. 160.

Pternistes lucani, Bocage, J. Sci. Lisb. vii. p. 68 (1879).

Hab. West Africa: Congo; Marungu Country, west of Lake Tanganyika.

5. *PTERNISTES BOEHMI*.

Francolinus cranchi, Finsch & Hartl. (*nec* Leach) Ost-Afr. p. 579, pl. ix. (1870).

Pternistes böhmi, Reich. J. f. O. 1885, p. 465.

Francolinus rubricollis, Böhm, J. f. O. 1885, pp. 39, 71.

Hab. Central East Africa: Usui, Victoria Nyanza, Unyam-uesi, Unyanyembe, Ugogo.

6. *PTERNISTES SWAINSONI*.

Perdix swainsoni, Smith, Rep. Exp. Cent. Afr. p. 54 (1836).

Francolinus swainsoni, Smith, Ill. Zool. S. Afr. pl. 12 (1838).

Pternistes swainsoni, Gray, List Gall. B. iii. p. 32 (1844).

Hab. South Africa: Matabele, Transvaal, Cape Colony, Damaraland.

7. *PTERNISTES RUFOPICTUS*.

Pternistes rufopictus, Reich. J. f. O. 1887, p. 52.

Hab. Central East Africa : Wembaere, Victoria Nyanza.

8. *PTERNISTES LEUCOSCEPUS*.

Perdix rubricollis, Cretzsch. (*nec* Gmel.) Rüpp. Atl. p. 44, pl. 30 (1826) [figure resembles *P. infuscatus*].

Pternistes rubricollis, Gray, List Gall. B. iii. p. 32 (1844).

Francolinus rubricollis, Gray, Gen. B. iii. p. 506 (1846) [part].

Pternistes asiatica, Licht. Nomencl. Av. p. 84 (1854).

Francolinus leucoscepus, Gray, List Birds, pt. v. Gall. p. 48 (1867).

Lichtenstein's name (*asiaticus*), so far as priority goes, should stand for this species ; but as the name is misleading, and there was no description, I have determined to adopt the later name (*leucoscepus*) of G. R. Gray.

Hab. North-east Africa : Massowah, Bogos, Abyssinia, Somali.

9. *PTERNISTES INFUSCATUS*.

Pternistes rubricollis, Rüpp. N.O.-Afr. p. 106 (1845) ; Reich. J. f. O. 1891, p. 143.

Pternistes infuscatus, Cabanis, J. f. O. 1868, p. 413 ; Cabanis, v. d. Decken's Reis. iii. p. 44, pl. 14 (1869).

Pternistes clappertoni, Shelley, Ibis, 1888, p. 295.

Hab. East Africa : from Mamboio northwards to Kilimanjaro and Taveta.

III.—*Some further Notes on the Periods occupied by Birds in the Incubation of their Eggs.* By WILLIAM EVANS, F.R.S.E.

SINCE my paper on Incubation appeared in 'The Ibis' for January last (1890, p. 52), some additional information has been collected which it may be well now to bring under the notice of those interested in the subject.

In W. J. Broderip's 'Leaves from the Note-book of a Naturalist,' 1852 (p. 14), the period of incubation in the case

